

98 121307/12

A23 D2 F24 G02 F03

BADI 96.08.05

*DE 19631658-A1

BASE AG

96.08.05 96DE-1031658 (98.02.12) C09K 19.38

Chiral nematic polycarbonate with mesogenic and chiral groups on separate carbonate units - prepared by reacting corresponding diols with phosgene or di-phosgene useful in pigment and as optical device, surface coating material or colourant, e.g. in lacquer, printing ink or cosmetics

C98-039979

Addnl. Data: SCHUHMACHER P., KRICHELDORF H R, SUN S

Chiral nematic polycarbonates (I) containing carbonate units with mesogenic groups and carbonate units with a chiral group are new. (I) are prepared by condensing the corresponding diols containing mesogenic groups and chiral groups and optionally photoreactive groups and/or groups increasing the solubility and/or groups for thermal cure with (di)phosgene, preferably using cinnamoyl chloride as chain stopper. Also claimed are pigments containing (I) and coating compositions containing (I) or a pigment of this type.

USE

(I) are used as optical devices or surface coating materials; as colourants, especially in lacquer systems for coatings surfaces or in

A(S-E6A) D(S-B) E(25) G(2-A2E, 2-A4A, 2-A5) I(1)
D1D1

printing inks; and in cosmetics, especially nail varnish and lipstick (all claimed).

PREFERRED POLYCARBONATES

(I) may also contain carbonate units with a photoreactive group and/or carbonate units with other, achiral groups. (I) especially are of formula (IA), in which the molar ratio w/x/y/z = 1-20/1-50/10-20/10; A = a mesogenic of the formula: B = a chiral group of formula: D = a photo-reactive group of the formulae: E = another achiral group of the formula: L = alkyl, alkoxy, halogen, COOR, OOR, CONHR or NHCOR; X = sulphur (S), oxygen (O), nitrogen (N), methylene (CH_2) or a single bond, R = alkyl or hydrogen (H); A = a single bond, $(\text{CH}_2)_n$, $\text{O}(\text{CH}_2)_n$, $\text{S}(\text{CH}_2)_n$, $\text{NR}(\text{CH}_2)_n$ or a group of the formulae: R₁ = H, halogen, alkyl or phenyl; n = 1-15. (I) have an intrinsic viscosity of 0.08-3, especially 0.1-2 dl/g at 20°C and glass transition temperature (T_g) of 50-300, especially 60-200°C.

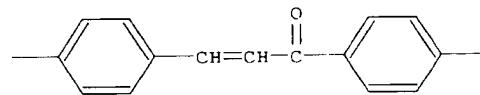
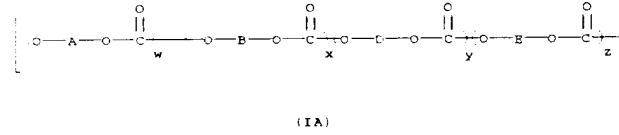
EXAMPLE

15 mmole 4,4'-dihydroxybiphenyl, 7.5 mmole

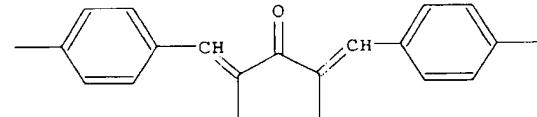
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methylhydroquinone, 7.5 mmole (S)-(2-methylbutyl)thiohydroquinone, 16.5 mmole diphosgene and 1 drop triethyl amine were dissolved in 100 ml dry cold dichloromethane. 80 ml 1 N sodium hydroxide solution were added and the phases were stirred at high speed for 10 minutes and at normal speed for 20 minutes, with ice cooling. The organic phase was separated, added to 800 ml methanol and filtered. The polymer was reprecipitated from dichloromethane with methanol and dried in vacuo at 80°C. This interfacial polycondensation gave an 88% yield of a molar of formula (IA) with a molar ratio x/y/z = 5/1/4;

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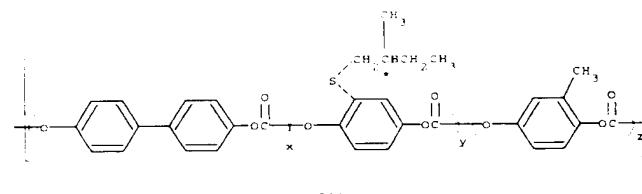
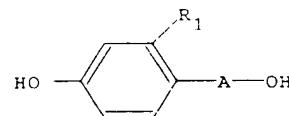


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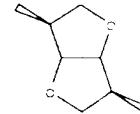
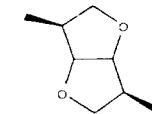
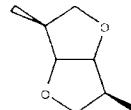
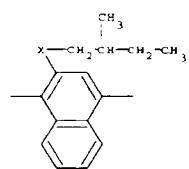
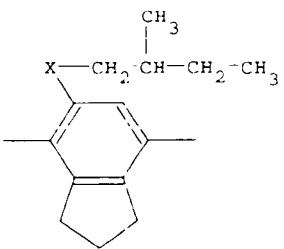
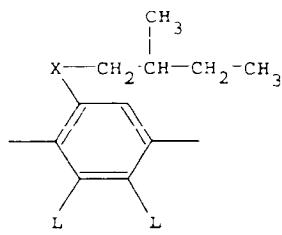
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98 121307/12



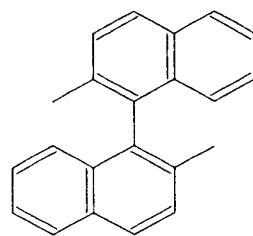
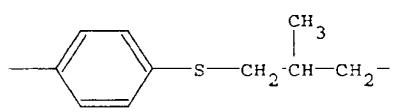
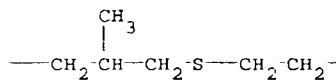
(IA)



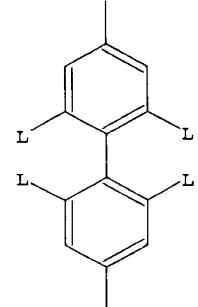


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98-121307/12



or



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